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MEMORANDUM FOR: See Distribution

SUBJECT: Minutes of the U-2R Cockpit Configuration Panel
Meeting (Held at LAC Burbank 30 and 31 Nov 66)

1. The purpose of the meeting was to have USAF and IDEALIST pilots evaluate and change, where necessary, the LAC-proposed U-2R cockpit configuration.

2. To make this evaluation as realistic as possible, each of the following listed pilots were fitted with full pressure (J type) suits loaned from the AFSC facility at Edwards AFB.

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Maj. Victor Milam
Capt. Jerry Davis
Mr. Frank Powers

Detach G	Edwards AFB
Detach G	Edwards AFB
Detach G	Edwards AFB
	Davis Monthan AFB
	Davis Monthan AFB
	LAC

3. On 30 November, each of the above named pilots, after donning the full pressure suit, was allowed 30 to 45 minutes (including approximately 10 minutes with the suit pressurized) in the mock-up cockpit. Each individual evaluated such items as readability and reachability of controls and instruments, cockpit mobility and room with pressure suit inflated and uninflated, and ejection sequence clearance with suit inflated. After all pilots had undergone their evaluation of the cockpit, a general discussion and critique was held. Each pilot was asked for his comments on items of major concern regarding the cockpit and life support items. The following are the major points of the critique:

a. It was difficult for the large pilots and impossible for the smaller pilots to reach switches and some of the instruments on the main panel.

b. All pilots found it was impossible to grasp the ejection seat D ring under pressurized conditions.

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c. All pilots found that it was impossible to grasp the alternate ejection T-handle on the left side of the seat.

d. The pilots found that the control yoke neutral position was a little too far aft for their control.

e. It was generally agreed that for small pilots it would be highly advantageous if the seat could be manually moved forward as much as 4 inches.

f. With the exception of the above points, all pilots were in agreement that the LAC-proposed cockpit is a great improvement over its present U-2 cockpit, and that it should greatly improve their ability to successfully complete reconnaissance missions.

4. The first thing the following morning (31 Nov), the above points were brought to the attention of Mr. Kelly Johnson and other members of the LAC U-2R Development Staff. Mr. Johnson stated that insofar as possible within design limits, LAC would make changes in the cockpit as follows:

a. The main instrument panel would be moved aft two inches. This would correct the problem of reaching switches and instruments on it.

b. The ejection seat D ring will be enlarged.

c. The control yoke neutral position would be moved forward by $1\frac{1}{2}$ inches.

d. Engineering studies would be made on the feasibility of having the ejection seat movable in the for and aft plane as much as 4 inches.

5. Following the meeting with Mr. Johnson, the pilots proceeded back to the cockpit mock-up for the purpose of jointly selecting and freezing the individual location of each switch instrument and control. The results of this meeting are too numerous and generally not significant to be mentioned in this memo. LAC has this list and will, consistent with design limitations, see that the pilots' desires are incorporated in the U-2R's final cockpit design. The significant item of the

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meeting was the pilots' decision to group the main instrument panel into two sections. The left side of the panel would be used for placement of those instruments primarily used in the low altitude environment, i.e., airspeed, vertical velocity, standby artificial horizon, standby altimeter, and the HSI indicators. The right side of the panel would be used for those instruments that the pilot would be primarily interested in when at mission altitude, i.e., System 12, O. S., engine, and the triple display (alt - Mach - airspeed) instruments.

6. It is my opinion that this meeting contributed significantly in improving the U-2 pilot's ability to perform his primary mission. Each of the pilots expressed complete satisfaction in the cockpit design as modified by their contributions in these meetings.

7. The following are additional points brought up by the pilots that LAC will investigate for feasibility of incorporation into the U-2R:

a. An emergency capability for extending the drag spoilers on the wing (possibly by air bottles) in the event that the wing flaps cannot be lowered.

b. Increase tail wheel steering for more ground maneuvering.

c. An oral fault monitoring and warning device.

d. Angle of attack indicators.

Special Actions Staff, OSA

SAS, [redacted] (2 Dec 66)

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